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ABSTRACT

In discussing science/mathematics teacher shortage it is important to consider that: teacher demand will increase as school boards increase high school graduation requirements in science/mathematics, there must be an increase of teachers and also efforts to make teaching more attractive to those leaving the profession for better paying jobs in industry, and the microcomputer will have an impact upon all American education. It is up to educators to help equip students with the skills, knowledge, and values to meet their duties and responsibilities to the past and future of this nation. Mathematics and science are important parts of the past and future, and high school graduates not proficient in the basic skills will narrow the pool from which future engineers and scientists will be drawn. The strength of our economic system, the defense of our country are predicated on our dominance in education and technology, and to maintain strength in these areas, mathematics/science skills cannot degenerate. Quality teachers are needed to have quality education. A position of "Master Teacher" should be established a position of esteem and distinction with salaries competitive with engineering, law, and other professions. In addition, the impact, potential, and immensity of computers in education and science/mathematics teacher training must be addressed. (JN)

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SPEECH DELIVERED BY T. H. BELL
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"SCIENCE, MATHEMATICS, TECHNOLOGY
AND THE TEACHER BRAIN DRAIN"

CAPITOL HOLIDAY INN, LEWIS ROOM
WASHINGTON, D.C. -- 9:00 AM
FEBRUARY 9, 1983

SE 040901

AS YOU MEET TO DISCUSS THE SHORTAGE OF MATH AND SCIENCE TEACHERS IT IS IMPORTANT FOR YOU TO CONSIDER NOT ONLY THE PROBLEMS WE FACE TODAY BUT THOSE WE WILL BE FACING OVER THE NEXT THREE TO SIX YEARS. TO PUT THIS IN PERSPECTIVE, I WOULD LIKE TO EMPHASIZE THREE POINTS:

1. ALL ACROSS THE NATION, SCHOOL BOARDS ARE INCREASING HIGH SCHOOL GRADUATION REQUIREMENTS IN MATHEMATICS AND SCIENCE. KEEP IN MIND THAT FOR EACH ADDITIONAL YEAR OF STUDY REQUIRED IN EITHER OF THESE FIELDS THERE WILL BE A NATIONWIDE DEMAND FOR 34,000 ADDITIONAL HIGH SCHOOL TEACHERS.
2. TEACHERS ARE LEAVING THE TEACHING PROFESSION FOR BETTER PAYING JOBS IN THE EMERGING HIGH TECH INDUSTRIES. THEREFORE, WE MUST NOT ONLY INCREASE THE SUPPLY OF TEACHERS, WE MUST ALSO MAKE TEACHING MORE ATTRACTIVE TO ENSURE FEWER TEACHER "DROPOUTS".
3. TO DATE WE HAVE NOT FULLY GRASPED THE SIGNIFICANCE OF THE MICROCOMPUTER AS A FORCE THAT WILL CHANGE OUR ENTIRE TEACHING AND LEARNING METHODS FROM KINDERGARTEN TO GRADUATE SCHOOL. COMPUTERS ARE NO LONGER THE FAD THEY WERE BACK IN THE 1960'S. (JOHN NAISBITT IN MEGA-TRENDS REMINDS US THAT FADS ARE IMPOSED FROM THE TOP DOWN AND TRENDS COME FROM THE BOTTOM UP.

IT IS UP TO THOSE OF US IN EDUCATION TO HELP EQUIP THE YOUTH OF OUR NATION WITH SKILLS, KNOWLEDGE, AND VALUES -- SO THAT THEY CAN MEET THEIR DUTIES AND RESPONSIBILITIES TO THE PAST AND FUTURE OF THIS NATION.

AMONG OTHER THINGS, WE HAVE A RESPONSIBILITY AS EDUCATORS TO HELP AMERICA REMAIN THE TECHNOLOGICAL LEADER OF THE WORLD. AS PRESIDENT REAGAN OBSERVED IN HIS STATE OF THE UNION ADDRESS, "WE MUST KEEP THAT EDGE, AND TO DO SO WE NEED TO BEGIN RENEWING THE BASICS, STARTING WITH OUR EDUCATIONAL SYSTEM."

MATH AND SCIENCE EDUCATION ARE AN IMPORTANT PART OF PAST REASONS THAT AMERICA ROSE TO INTERNATIONAL GREATNESS AND ARE EXTREMELY IMPORTANT FOR THE CONTINUATION AND RENEWAL OF AMERICAN LIFE AND THE ATTAINMENT OF THE AMERICAN DREAM.

SOME GROUPS SAY THERE IS NO SHORTAGE OF MATH AND SCIENCE EDUCATION OR THE NUMBER OF TEACHERS TO PROVIDE THAT EDUCATION. OTHERS SAY THE DEFICITS IN BOTH AREAS ARE ENORMOUS. OBVIOUSLY, WE NEED TO CONSIDER WHAT THE NEED WILL BE WHEN WE CHANGE OUR EMPHASIS. WE MUST RESPOND TO THE NEED FOR MORE TECHNICAL AND SCIENTIFIC COMPETENCE AND MORE SCIENTIFIC AND COMPUTER LITERACY. REGARDLESS OF WHAT THE SPECIFIC FIGURES APPEAR TO SAY, IT SEEMS INEVITABLE THAT THE FUTURE OF WHITE COLLAR WORKERS, INCLUDING TEACHERS WILL BE VERY STRONG. IT TAKES TIME TO INCREASE THE SUPPLY OF NEW TEACHERS OR RETRAIN EXISTING ONES.

NOW I DON'T MEAN THIS AS AN ADVERSE REFLECTION ON OUR CHAMPIONSHIP REDSKIN FOOTBALL TEAM (OF WHOM WE WASHINGTONIANS ARE VERY PROUD), BUT THE FACT IS THAT IN MOST OF OUR AMERICAN ELEMENTARY AND SECONDARY SCHOOLS, A FOOTBALL HERO HAS MORE RESPECT THAN A SCHOLAR. PEP RALLIES RECEIVE MORE ATTENTION AND ARE FAR BETTER ATTENDED THAN A DEBATE MEET OR ANY OTHER TYPE OF ACADEMIC COMPETITION. WE HAVE STRESSED EXCELLENCE AND COMPETITION IN ATHLETICS BUT SEEM TO HAVE FORGOTTEN THEM IN ACADEMICS.

EDUCATION HAS MISPLACED ITS PRIORITIES. MATH AND SCIENCE EDUCATION ARE INDICATIVE OF THIS. FOR EXAMPLE, A 1980 SURVEY SHOWED THAT ONLY NINE STATES REQUIRED TWO YEARS OF MATHEMATICS FOR HIGH SCHOOL GRADUATION, AND ONLY ONE STATE REQUIRED THREE YEARS. OTHER DATA SHOWED THAT ONLY 38% OF HIGH SCHOOL SENIORS REPORT TAKING 2.5 OR MORE YEARS OF MATHEMATICS AND NEARLY 5% REPORT TAKING NO MATH AT ALL. ONLY ONE-FOURTH REPORT TAKING 2.5 YEARS OR MORE OF SCIENCE WHILE 8% HAVE TAKEN NO SCIENCE COURSES.

H. G. WELLS HAS OFTEN BEEN QUOTED FOR HIS OBSERVATION THAT HISTORY IN THE 20TH CENTURY HAS BECOME A RACE BETWEEN EDUCATION AND CATASTROPHE. THAT OBSERVATION HAS NEVER BEEN MORE TRUE. IT SEEMS THAT WE OFTEN FORGET OUR CHILDREN WILL SPEND MOST OF THEIR LIVES IN THE 21ST CENTURY, A CENTURY OF BEWILDERING

SCIENTIFIC AND TECHNOLOGICAL CHANGE. WE DON'T HAVE TIME TO WORRY ABOUT FUTURE SHOCK WHEN WE ARE TRYING TO COPE AS A PEOPLE WITH THE PRESENT SHOCK AND DISLOCATION CAUSED BY A SOCIETY IN TRANSITION FROM AN INDUSTRIAL ECONOMY TO A HIGH-TECH INFORMATION-SERVICE ECONOMY.

THE REVOLUTION IN INFORMATION IS AS PROFOUNDLY CHANGING SOCIETY AS DID THE INVENTION OF THE PRINTING PRESS, OR THE INDUSTRIAL REVOLUTION DID CENTURIES AGO. THIS REVOLUTION WILL MAKE ALL OF US MANAGERS OF INFORMATION. IT WILL FREE US TO BUILD AND RUN MACHINES AND TO PURSUE BETTER LIVES IN SO MANY OTHER WAYS...IF WE ARE PREPARED TO DO SO.

HIGH SCHOOL GRADUATES NOT PROFICIENT IN THE BASIC SKILLS WILL NARROW THE POOL FROM WHICH FUTURE ENGINEERS AND SCIENTISTS WILL BE DRAWN. FURTHERMORE, THOSE STUDENTS WHO CHOOSE OTHER CAREER FIELDS WILL NOT HAVE THE PREPARATION TO DEAL WITH THE TECHNOLOGY BASED ISSUES THEY WILL FACE AS WORKERS AND CITIZENS IN A NATION WHOSE FUTURE IS LINKED TO TECHNOLOGY ADVANCES. WE ARE ALREADY SEEING SIGNS OF THIS WITH THE TERRIBLY HIGH PERCENTAGE OF UNEMPLOYED TEENAGERS AND YOUNG ADULTS.

IN THE PAST, STUDENTS HAVE NOT BEEN MADE AWARE THAT SCIENCE IS IMPORTANT TO THEM PERSONALLY. THE GENERAL POPULATION OF THE UNITED STATES HAS NOT UNDERSTOOD THE IMPORTANCE OF A FIRM GROUNDING IN MATH, SCIENCE AND THE BASIC ACADEMIC SKILLS.

A POINT THAT NO AMERICAN CAN AFFORD TO MISS IS THAT WORLD LEADERSHIP DEPENDS ON TECHNOLOGICAL SUPERIORITY. AS THE LATE PREMIER BREZHNEV STATED: " THE FIELD OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS IS TODAY ONE THE MAJOR FRONTS IN THE HISTORICAL BATTLE BETWEEN THE TWO SYSTEMS." (I.E., SOCIALISM AND CAPITALISM.)

AT THE END OF W.W. II, THE JAPANESE RECOGNIZED AND MADE A COMMITMENT TO THE TEACHING OF MATH AND SCIENCE AND TECHNOLOGICAL DEVELOPMENT. THEY HAVE MET THIS COMMITMENT WITH HIGH ACADEMIC REQUIREMENTS AND STANDARDS. IN THE U.S.S.R., COMPULSORY SCIENCE INCLUDES FIVE YEARS OF PHYSICS AND FOUR OF CHEMISTRY. FEWER THAN 20% OF U.S. HIGH SCHOOL GRADUATES TAKE EVEN ONE YEAR OF PHYSICS, AND LESS THAN 40% TAKE ONE YEAR OF CHEMISTRY. (IRONICALLY, MUCH OF JAPAN'S ADVANCE IN MATH AND SCIENCE HAS BEEN BASED ON CURRICULUM MATERIALS DEVELOPED IN THE UNITED STATES IN THE 1960'S.)

I WANT EVERY UNITED STATES CITIZEN TO BE AWARE THAT MANY OTHER INDUSTRIALIZED COUNTRIES ARE PROVIDING A MORE INTENSE, RIGOROUS CURRICULUM FOR THEIR STUDENTS. THEY ARE GETTING THE RESULTS THEY DEMAND. I FEAR THAT STUDENTS IN THESE COUNTRIES ARE WORKING TO GAIN THE EDUCATION THAT COULD ALLOW THE UNITED STATES TO SINK TO THE STATUS OF A SECOND RATE POWER. WE MUST RESPOND TO THIS MASSIVE CHALLENGE POSED BY THE OTHER INDUSTRIALIZED NATIONS OF THE WORLD.

THE STRENGTH OF OUR ECONOMIC SYSTEM, AND THE DEFENSE OF OUR COUNTRY ARE PREDICATED ON OUR DOMINANCE IN EDUCATION AND TECHNOLOGY. TO MAINTAIN OUR STRENGTH IN THESE AREAS, AND INDEED, OUR NATIONAL INDEPENDENCE, WE CANNOT AFFORD TO LET SKILLS IN THESE FIELDS DEGENERATE.

AS PHILOSOPHER ALFRED NORTH WHITEHEAD ONCE WROTE: "IT IS THE BUSINESS OF THE FUTURE TO BE DANGEROUS; AND IT IS AMONG THE MERITS OF SCIENCE THAT IT EQUIPS THE FUTURE FOR ITS DUTIES."

WHAT WE ALL KNOW IS THAT IN ORDER TO HAVE QUALITY EDUCATION, WE MUST HAVE QUALITY TEACHING. I FEEL THAT IN ALL SUBJECTS OF ACADEME, WE ARE NOT ATTRACTING THE DESIRED LARGE NUMBERS OF BRIGHT AND TALENTED TEACHERS INTO THE TEACHING PROFESSION. MOST OF THE OTHER PROFESSIONS AND MANY OF THE SKILLED TRADES PAY MORE THAN TEACHING. THIS HAS BEEN A PROBLEM FOR YEARS AND I WILL NOT BELABOR THE POINT BECAUSE I AM SURE IT IS ONE OF WHICH YOU ARE ALL AWARE.

I DON'T BELIEVE ANYONE COULD DISPUTE THE FACT THAT THERE OUGHT TO BE MORE ECONOMIC POTENTIAL IN THE TEACHING PROFESSION. WE DESPERATELY NEED TO ESTABLISH THE TEACHING PROFESSION AS A PRESTIGIOUS, ESTEEMED, AND HONORABLE CALLING. PROMISING STUDENTS AND TALENTED TEACHERS ALREADY IN THE PROFESSION SHOULD BE ABLE TO READILY MOVE THROUGH RECOGNITION AND PROMOTIONS TO COMMAND SALARY AND ESTEEM.

ON OUR COLLEGE AND UNIVERSITY CAMPUSES WE HAVE ESTABLISHED A SYSTEM OF ACADEMIC RANK IN ACADEME, AND IT IS UNIVERSALLY ACCEPTED. IN ACADEME WE HAVE FOUND IT BOTH NECESSARY AND DESIRABLE TO GO EVEN BEYOND THIS POINT. WE HAVE ENDOWED CHAIRS AND DISTINGUISHED PROFESSORSHIPS ON MANY CAMPUSES.

COMPARE THIS WITH THE EXISTING SYSTEM IN OUR ELEMENTARY AND SECONDARY SCHOOLS. WE HAVE A SINGLE SALARY SCHEDULE WITH NO SALARY DIFFERENTIAL EXCEPT FOR YEARS OF EXPERIENCE AND COLLEGE CREDIT HOURS. WE HAVE NO SYSTEM IN OUR PERSONNEL PRACTICES THAT OFFERS ENCOURAGEMENT AND OPPORTUNITY TO BE RECOGNIZED AS AN OUTSTANDING PROFESSIONAL WORTHY OF DISTINCTION IN BOTH SALARY AND ESTEEM.

WE OFFER LITTLE INCENTIVE TO THOSE WHO ENJOY THE LIFE OF TEACHING AND WHO HAVE NO DESIRE TO SEEK AN ADMINISTRATIVE POSITION.

I BELIEVE WE NEED TO ESTABLISH IN AMERICAN SOCIETY A NEW POSITION OF MASTER TEACHER. THIS NEW POSITION SHOULD BE A MUCH ESTEEMED AND SOUGHT AFTER DISTINCTION AMONG TEACHERS. IT SHOULD PROVIDE A STEP BEYOND THE RANKS OF BEGINNING TEACHER AND REGULAR TEACHER, AND IT SHOULD COMMAND A SALARY THAT IS COMMENSURATE

WITH OTHER SALARIES THAT RECOGNIZE ACCOMPLISHMENT AND
GREAT WORTH TO AMERICAN SOCIETY.

WE CANNOT CONTINUE WITH THE STATUS QUO AND BUILD A TRULY
GREAT TEACHING PROFESSION. THE TIME IS LONG PAST DUE FOR A
CHANGE.

THERE IS NOTHING WE DO IN AMERICA THAT IS MORE IMPORTANT
THAN TEACHING. AS WE LOOK TO THE FUTURE AND THE COMPETITION WE
WILL BE FACING IN A CHANGING AND FIERCELY COMPETITIVE WORLD, WE
SIMPLY MUST REALIZE THAT OUR YOUTH DESERVE TO BE TAUGHT BY THE
VERY BEST MINDS WE CAN ATTRACT TO OUR SCHOOLS.

IN THE YEARS AHEAD OUR STATE LEGISLATURES, GOVERNORS,
SCHOOL BOARDS, ADMINISTRATORS AND OUR TEACHER ORGANIZATIONS MUST
TAKE STEPS TO BUILD A TRULY GREAT TEACHING PROFESSION. THERE
MUST APPEAR IN THE LAW, IN THE SCHOOL FINANCE FORMULAS, AND IN
THE SCHOOL BOARD POLICIES ACROSS THE NATION, NEW PROVISIONS THAT
WILL HELP US TO ATTRACT AND KEEP THE VERY BEST TALENT
AVAILABLE.

IT IS MY HOPE THAT WHAT I HAVE BEEN SAYING ABOUT THE MASTER
TEACHER CONCEPT WOULD AT LEAST TRIGGER MORE PUBLIC DEBATE ON
WHAT WE SHOULD DO TO BUILD A TEACHING PROFESSION TO MEET THE
NEEDS OF AN INCREASINGLY COMPLEX SOCIETY.

WE MUST MAKE IT POSSIBLE FOR OUR MOST DISTINGUISHED TEACHERS TO COMMAND A SALARY THAT IS COMPETITIVE WITH ENGINEERING, LAW, ACCOUNTING AND OTHER PROFESSIONS. THIS WILL REQUIRE A BIG INCREASE IN A MASTER TEACHER INCREMENT.

LETS NOW THINK ABOUT AND SPECULATE ON THE ENORMOUS IMPACT THAT THE MICROCOMPUTER AND SILICON CHIP WILL HAVE UPON ALL AMERICAN EDUCATION. THIS IS OF COURSE DIRECTLY RELEVANT TO WHAT WE HAVE BEEN DISCUSSING CONCERNING THE SUPPLY OF TEACHERS. CONSIDER THE FOLLOWING FACTS: A FEW YEARS AGO A POCKET CALCULATOR COST THE EQUIVALENT OF A TRIP TO CALIFORNIA. TODAY YOU CAN GET ONE FREE WITH YOUR SUBSCRIPTION TO A MAGAZINE. GIVEN THE FRANTIC RATE OF ADVANCE IN THE COMPUTER INDUSTRY, IT

IS HIGHLY PROBABLE THAT IN TWO OR THREE MORE YEARS WE WILL HAVE TEACHING COMPUTERS THE SIZE OF A BILLFOLD THAT SELL FOR \$9.95. IT WILL BE POSSIBLE TO CARRY AROUND AN ELEMENTARY BIOLOGY, PHYSICS, OR CHEMISTRY, TEACHING COMPUTER THAT WILL TUTOR IN THE REQUIREMENTS OF THAT SUBJECT. STUDENTS WILL BUY THEM AND USE THEM AS CASUALLY AS THEY NOW USE POCKET CALCULATORS. THESE POCKET SIZE TEACHING COMPUTERS WILL CONTAIN MUCH OF THE COURSEWORK AND BASIC INFORMATION NOW FOUND IN OUR TEXT BOOKS. WHAT IS MORE, THESE POCKET TEACHING COMPUTERS WILL HAVE VERY SOPHISTICATED PROGRAMMING THAT WILL PROVIDE INTERACTION AND CONVERSATION WITH THE LEARNER.

IF YOU DO NOT BELIEVE THIS TO BE POSSIBLE, LET ME TELL YOU THAT A PROTOTYPE WAS DEVELOPED BY THE NATIONAL PHYSICAL LABORATORY IN ENGLAND A FEW YEARS AGO. THE TEACHING COMPUTER WAS CALLED MINNIE. IT HAS MORE KEY FUNCTIONS THAN ONE SEES ON A POCKET CALCULATOR, AND IT HAS CONSIDERABLE INTERACTIVE AND TUTORIAL CAPACITY IN THE TEACHING OF FRENCH TO ENGLISH LANGUAGE DOMINANT PERSONS OR ENGLISH TO FRENCH LANGUAGE DOMINANT PERSONS.

THIS ERA IS JUST AROUND THE CORNER. COMPETING CORPORATIONS ARE GOING TO BE PRODUCING THESE POCKET SIZE TEACHING COMPUTERS BY THE MILLIONS. THESE LITTLE UNITS WILL BE VERY HANDY TO USE AND THEY WILL BE MASS PRODUCED AT SO NOMINAL A COST THAT COMPETING COMPANIES ARE GOING TO RUSH INTO THE MARKET VERY SOON. THIS COULD RADICALLY CHANGE THE SCOPE AND SEQUENCE OF AMERICAN EDUCATION.

NOW IS THE TIME FOR TEACHERS AND ADMINISTRATORS IN EDUCATION TO FACE UP TO THE FACT THAT THE COMPUTER MANUFACTURING COMPANIES ARE GOING TO "CLIMB INTO OUR SAND BOX" AND START PUNCHING US AROUND. SOME MATH TEACHERS ARE NOW FRUSTRATED WITH THE POCKET CALCULATOR. THE BIOLOGY TEACHER ALONG WITH THE PHYSICS AND CHEMISTRY TEACHER SHOULD BE PREPARED FOR STUDENTS WHO WILL COME TO SCHOOL WITH MUCH OF THE SUBJECT MATTER AVAILABLE IN THE MEMORY OF A POCKET SIZE TEACHING COMPUTER.

WE NEED TO RECOGNIZE THIS FUTURE POTENTIAL AS A NEAR CERTAINTY. WE NEED TO REALIZE THAT THE POCKET TEACHING CALCULATOR WILL BE UPON US IN A VERY SHORT TIME, AND IT IS GOING TO ROCK THE FOUNDATIONS OF ACADEME. WE MUST GRASP THE IMMENSITY OF THE COMPUTER IN EDUCATION, IT IS GOING TO LEAD US TO BOOKLESS SCHOOLS, PAPERLESS NEWSPAPERS. INTERACTIVE AND TUTORIAL COMPUTER PROGRAMS WILL TEAR UP THE SCOPE AND SEQUENCE OF EDUCATION AS WE KNOW IT TODAY AND RESHAPE IT IN A MANNER THAT MAY BE TRAUMATIC TO MANY TEACHERS.

THE MOMENTUM WILL BE CARRIED BY THE INTENSE COMPETITION OF TEXAS INSTRUMENTS, ATARI, TRS-80, APPLE, IBM, AND ALL THE REST THAT ARE FRANTICALLY COMPETING FOR THIS EXPANDING MARKET. KEEP IN MIND THAT WE SPEND OVER \$200 BILLION IN THIS COUNTRY ON OUR PUBLIC AND PRIVATE EDUCATION ESTABLISHMENT. THIS IS A MARKET THAT HAS THE COMPUTER COMPANIES LICKING THEIR CHOPS. PARENTS WILL SPEND BILLIONS MORE IN ADDITION TO TAXES AND TUITION TO GIVE THEIR CHILDREN THE DEMONSTRATIVE EDUCATIONAL ADVANTAGES THAT WILL BE PROMISED ON T.V. AND IN FULL PAGE ADS IN NATIONWIDE MAGAZINES.

NOW, THIS IS CRUCIAL TO OUR DISCUSSION ABOUT MATH AND SCIENCE TEACHERS BECAUSE THE LEVEL OF PREPARATION AND THE SUBJECT MATTER MASTERY OF TOMORROW'S TEACHERS WILL DEMAND EFFECTIVE TEACHER PREPARATION ON THE UNIVERSITY CAMPUS.

I DID NOT SKETCH THE COMPUTER AND THE FUTURE OF EDUCATION WITH AN INTENT TO TELL YOU THAT IT WILL BE BAD FOR EDUCATION. I EMPHASIZE THAT IT WILL BE WHAT AMERICAN EDUCATION WILL MAKE IT-ONLY IF WE SEIZE THE OPPORTUNITIES AND SHAPE THE EVENTS TO OUR ADVANTAGE. IF WE DO NOT HAVE BOTH THE FORESIGHT AND INSIGHT TO GRASP THE SIGNIFICANCE OF THE TECHNOLOGICAL FUTURE WE WILL BE LEFT ON THE SIDELINES AND THE COMPUTER COMPANIES WITH THEIR OMNI-PRESENT SOFTWARE WILL DOMINATE.

THIS IS AN EXCITING AS WELL AS FRUSTRATING TIME TO BE INVOLVED IN EDUCATION. I COMMEND OUR NATIONAL INSTITUTE OF EDUCATION FOR SPONSORING THIS CONFERENCE. WE APPRECIATE YOUR PARTICIPATION IN IT. MAY YOU HAVE A RICH AND REWARDING EXPERIENCE.

I LOOK FORWARD TO YOUR REPORT AND DELIBERATION IN HELPING TO SORT OUT THE MYTHS AND REALITIES POSED BY THE EDUCATIONAL CHALLENGES OF THE INFORMATION AND HIGH TECH AGE.